SA-150, SA-300 Series
Pure Sine Wave Inverter
User's Manual

samlexpower

1. Important Safety Information

WARNING!

Before installing and using the Inverter, you need to read following safety information carefully.

1-1. General Safety Precautions

1-1-1. Do not expose the Inverter to water, mist, snow, or dust. To reduce the risk of hazard, do not cover or obstruct the ventilation shaft. Do not install the Inverter in a zero-clearance compartment. Overheating may occur.

1-1-2. To avoid the risk of fire and electronic shock, make sure that existing wiring is in good electrical condition and not undersize. Do not operate the Inverter with damaged or substandard Wiring.

1-1-3. There are some components in the inverter can cause arcs and sparks. To prevent from fire or explosion, do not put batteries, flammable materials, or anything should be ignition–protected around the inverter.

1-2. Precautions When Working with Batteries

1-2-1. If battery acid contacts your skin or clothing, you need to wash it out immediately with soap and water. If acid enters into your eyes, immediately flush your eyes with running cold water for at least 20 minutes and get medical attention immediately.

1-2-2. Never smoke or make a spark or flame in the vicinity of batteries or Engines.

1-2-3. Do not drop a metal tools on the battery. The resulting spark or short-circuit on the battery or other electrical parts may cause an explosion.

1-2-4. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery,
A lead-acid battery may produce a short-circuit current who's temperature is high enough to weld these metal items and cause a severe burn.

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2. Features

2-1. Electrical Performance 150W

Specification	Model No.	
Item	SA-150-112	SA-150-124
Continuous Output Power	150W	
Surge Rating	200W	
Input voltage	12V	24V
Input voltage Range	10.5 – 15.0	21.0 – 30.0
Output Voltage	110VAC ±5%	
Frequency	50 / 60Hz ±0.3%	
Max. Efficiency	87%	88%
No Load Current Draw	<0.3A	
Output Waveform	Pure Sine Wave (THD 6.0% Typical)	
Power Factor Allowed	cos θ -90° ~ cos θ +90°	
Protection	Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature.	
Remote Control	Yes, On/Off controlled by external switch	
Safety Certification	UL458	EN60950-1
EMC	FCC Class B	EN55022:1997 EN61000-3-2:1998 EN61000-3-3:1995 EN55024:2001
Operating Temperature	0 – 40 ℃	
Storage Temperature	-30℃ to 70℃	
Fan Cooling	Thermostatically controlled	
Dimensions	200(L) x 132(w) x 72(H) mm / 7.87(L) x 5.20(W) x 2.83(H) Inch	
Weight	2.7 kg / 5.4 Lbs.	

Note: The specifications are subject to change without notice.

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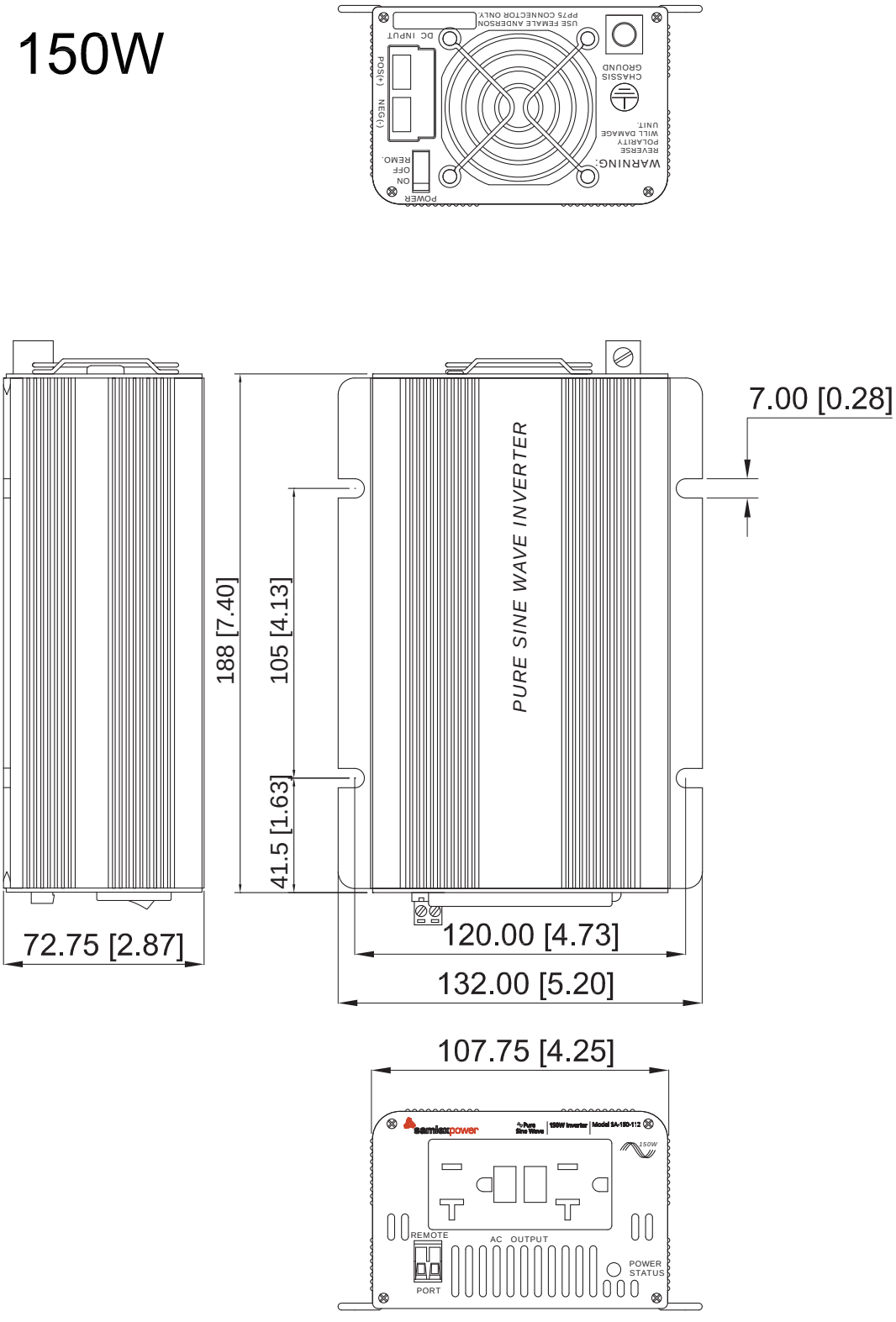
2-2. Electrical Performance 300W

Specification	Model No.	
Item	SA-300-112	SA-300-124
Continuous Output Power	300W	
Surge Rating	400W	
Input voltage	12V	24V
Input voltage Range	10.5 – 15.0	21.0 – 30.0
Output Voltage	110VAC ±5%	
Frequency	50 / 60Hz ±0.3%	
Max. Efficiency	89%	89%
No Load Current Draw	<0.35A	
Output Waveform	Pure Sine Wave (THD 6.0% Typical)	
Power Factor Allowed	cos θ -90° ~ cos θ +90°	
Protection	Overload, Short Circuit, Reverse Polarity (Fuse), Over / Under Input Voltage, Over Temperature.	
Remote Control	Yes, On/Off controlled by external switch	
Safety Certification	UL458	EN60950-1
EMC	FCC Class B	EN55022:1997 EN61000-3-2:1998 EN61000-3-3:1995 EN55024:2001
Operating Temperature	0 – 40 ℃	
Storage Temperature	-30℃ to 70℃	
Fan Cooling	Thermostatically controlled	
Dimensions	237(L) x 155(w) x 72(H) mm / 9.33(L) x 6.10(W) x 2.83(H) Inch	
Weight	3.5 kg / 7.7 Lbs.	

Note: The specifications are subject to change without notice.

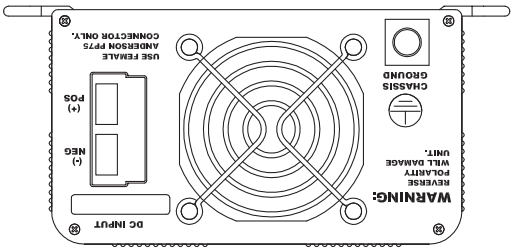
2-3. Mechanical Drawing

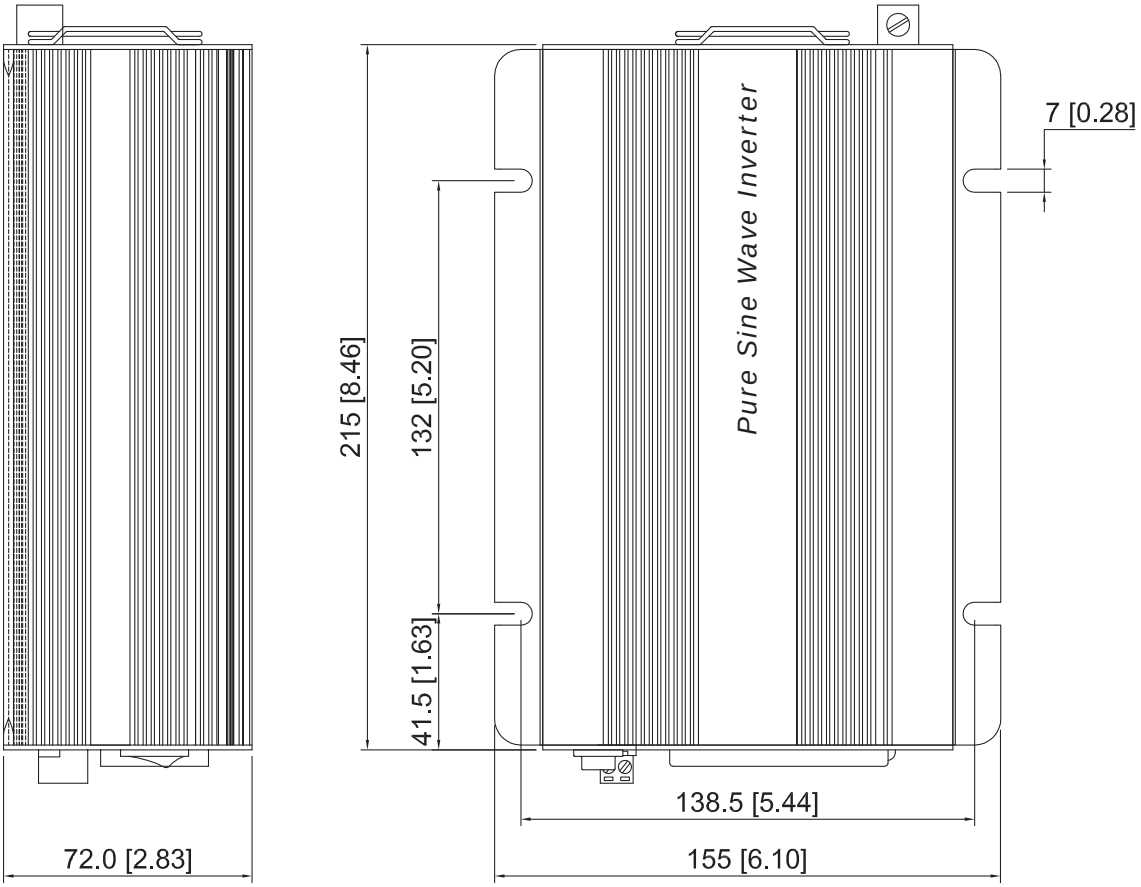
150W

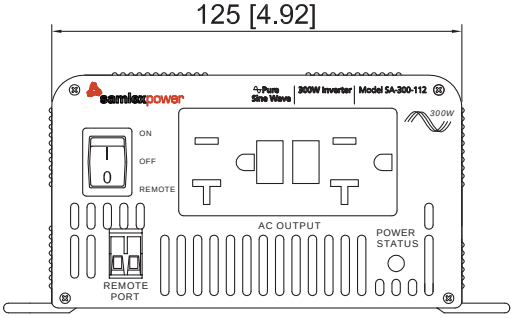


2-4. Mechanical Drawing

300W







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3. Instructions

SA-150 and SA-300 series are very reliable, portable, and fully protected. These pure sine inverters are used in a wide range of applications such as mobiles, office equipments, home entertainment, electronic appliances, etc.

To get the most effective power inverter, it must be installed and used properly. Please read the instructions of this manual before you install and operate this model.

3-1. Front Panel Operations

3-1-1. ON / OFF REMOTE switch：

Leave the switch in the down position (OFF) during installation.

3-1-2. LED display indicates Power Status

LED	Conditions	Status
Solid Green	———	AC Power OK
Fast Red Blink	- - - - - - - -	OVP
Slow Red Blink	— — — —	UVP
Intermittently Red Blink	-- -- --	OTP
Solid Red	———	OLP

3-1-3. Remote Port：Place 0.75mm^2 and Screw type cable between the remote port and the panel.

3-2. Rear Panel Operations

3-2-1. Ventilation shaft：Keep the ventilation shaft a distance (at least 3 inch) from anything surrounding it

3-2.2. Input terminals：Connect the input terminal to 12V / 24V battery or other 12V / 24V power source. 【＋】represents positive, and【－】represents negative. Reverse polarity connection will blow the internal fuse and may damage inverter permanently.

3-2-3. Use wire # 8 AWG to connects Chassis ground with Vehicle Chassis.

WARNING！

Do not combine the 12V model with 24V battery or the unit will be destroyed immediately.

Operate with the inverter without a proper ground connection may cause an electrical safety hazard.

Damage caused by reversed polarity is not covered by the warranty. Ensure the power switch is in the OFF position before putting the battery in.

3-3. AC Safety Grounding：

During AC wiring installation, AC input and output ground wires are connected to the inverter. The AC input ground wire must be connected to the incoming ground from AC utility source.

The AC output ground wire should go to the grounding point for your loads (for example, a distribution panel ground bus).

3-3-1. Neutral Grounding (GFCI'S):

110V models：The neutral conductor of the AC output circuit of the Inverter is automatically connected to the safety ground during inverter operation. This conforms to National Electrical Code requirements that separately derived from AC sources (such as inverters and generators) which have their neutral conductors tied to ground in the same way as the neutral conductors from the utility tied to ground at the AC breaker panel. For models configured with a transfer relay, while AC utility power is present and the Inverter is in bypass mode, this connection (the neutral of the Inverter's AC output to input safety ground) is not present so that the utility neutral is only connected to ground at your breaker panel, as required. Samlex has tested the following GFCI- properly when connected to the output of the Inverter.

WARNING！

Never connect the inverter's output to the AC distribution grid, such as the household AC wall outlet.

It will damage the Inverter.

3-4. Installation

Before connecting your applications to the inverter, always check the power draw of your appliances. The inverter can supply surge power for a short time so as to start up the electrical equipment such as motors, pumps… that need more power while starting up.

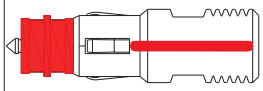
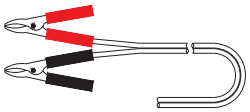
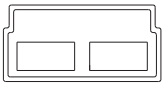
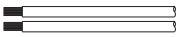
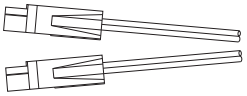
When all the above requirements are checked OK and satisfied and all connections are made, it's time to turn on the inverter by switching the power to ' I ' position. The sine wave filters provide sine wave output voltage when driven from AC outlet.

To save the battery power, you are highly recommended to turn off the inverter when it is not used.

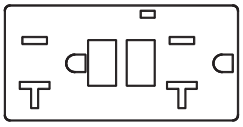
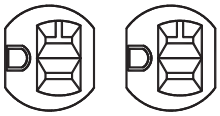
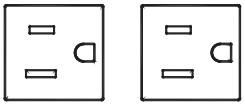
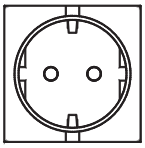
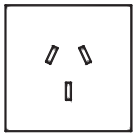
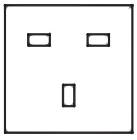
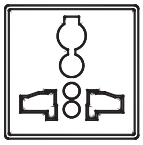
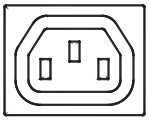
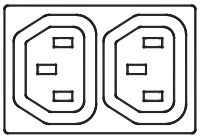
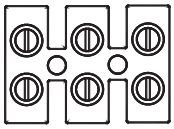
DC input voltage status as follows:

Model	DC Input Over Voltage		DC Input Under Voltage	
	Shut-down	Restart	Shut-down	Restart
12V models	15.3	14.3	10.5	12.7
24V models	30.6	28.6	21.0	25.2

3-5. DC Input (Outlet sockets available)：

CIGARETTE	CLAMP	POWER CLAW
		
STRIPPED WIRE	PP45	
		

3-6. AC output (Outlet Sockets available)：

North America (GFCI)	NEMA 5-20R
	
NEMA 5-15R	**Continental European**
	
Australia / New Zealand	**United Kingdom**
	
Universal	**IEC-1**
	
IEC-2	**HARD WIRE**
	

3-7. ON / OFF / REMOTE Main Switch.

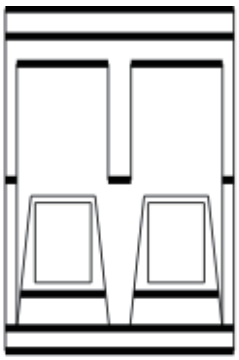
3-7-1. Before installing the inverter, make sure the main switch must be “OFF”.

3-7-2. Before using the remote unit, make sure the main switch must be “ REMOTE”.

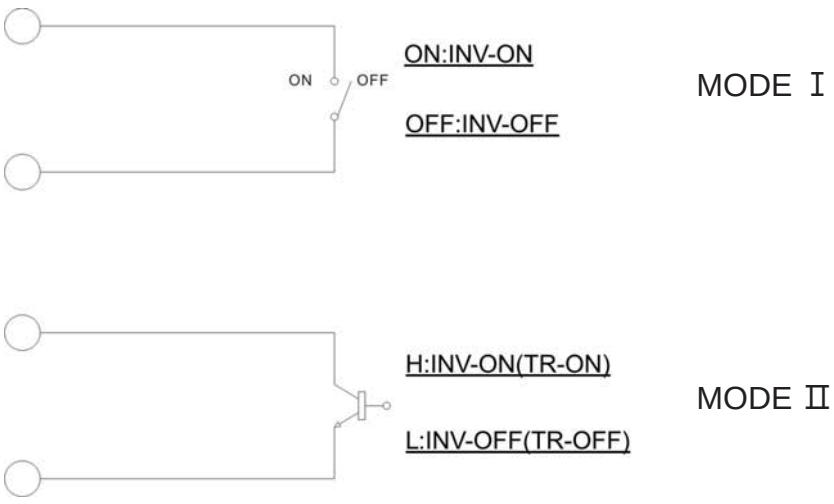
3-7-3. Ensure the remote control contact is off.

3-7-4. Remote Port：Place 0.75mm^2 and Screw type cable between the remote port and the panel.

3-7-5. Remote port ON/OFF inverter setup status



REMOTE PORT



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4. Troubleshooting

WARNING !

Do not open or disassemble the Inverter. Attempting to service the unit yourself may cause the risk of electrical shock or fire.

Problems and Symptoms	Possible Cause	Solutions
No output voltage, the LED glows Red light.		
a. Power status light is blinking red fast.	Over input voltage.	Check input voltage. Reduce input voltage.
b. Power status light is blinking red slowly.	Low input voltage.	Recharge battery. Check connections and cable.
c. Power status light is blinking red intermittently.	Thermal shutdown	Improve ventilation. Make sure ventilation shafts in the inverter are not obstructed. Lower ambient temperature.
d. Power status light is glowing red steadily.	Short circuit, Wiring error, Overload	Check AC wiring for short circuit. Remove load.

5. Maintenance

Very little maintenance is required to keep your inverter operating properly. You should clean the exterior of the unit periodically with a damp cloth to pre vent accumulation of dust and dirt. At the same time, tighten the screws on the DC input terminals.